DOCUMENT RESUME

ED 169 497 CS 004 760

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TITLE A Case Study of Word Assignation Strategies of Skilled Adult Readers.
PUB DATE Dec 78
NOTE 14p.; Paper presented at the Annual Meeting of the National Reading Conference (28th, St. Petersburg Beach, Florida, November 30-December 2, 1978)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Adults; *Context Clues; Decoding (Reading); Postsecondary Education; *Reading Comprehension; Reading Habits; Reading Research; *Recall (Psychological); *Semantics; Structural Analysis; Syntax; Verbal Learning; *Word Recognition; *Word Study Skills

ABSTRACT

When two adults read eleven paragraphs, assigned a meaning to the target word in each paragrah, and answered questions about their strategies for dealing with the difficult/unknown words, they exhibited four strategies, outside of actual definition, that skilled readers use to deal with such words. The most often used strategy is paragraph restatement, essentially an avoidance strategy, by which the reader exhibits an understanding of the passage without a distinct understanding of the word. The second strategy, syntactic analysis, is an expressed utilization of the grammatical position of the word in the sentence without necessarily being semantically correct. The third approach, visual or auditory word part analysis, is a more advanced approach in which the reader deals with the word as a unit rather than as an embedded part of a sentence. The fourth strategy, recall, may represent an important stage in the development of word meaning; this approach indicates a familiarity with the word, but only through a problematical storage in memory (such as remembering the word in a specific context, as a memorized poem) instead of as an individual word. Follow-up studies also indicate a general movement of the words in subsequent encounters from paragraph restatement to the other categories that require more awareness of individual words. (RL)

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# A CASE STUDY OF WORD ASSIGNATION STRATEGIES OF SKILLED ADULT READERS

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Paper presented at the National Reading Conference
December, 1978
St. Petersburg, Florida

CS004760

Introduction and purpose

The purpose of this study was to discover the strategies that fluent readers use to assign meaning to difficult or unknown words in context. The study is based on two theoretical beliefs. One, that reading is an information-processing activity composed of various cognitive strategies and secondly, that context is an effective method of vocabulary acquisition and development.

Viewing reading as an information-processing activity (Goodman, 1967; Smith, 1972; Geyer & Kolers, 1974; Anderson, 1977; Spiro, 1977) results in an emphasis on process research rather than structure research. The field of process research strives to examine the reader's behavior and strategies during the reading process rather than after.

Much of the background and methodology for research emphasizing process has come from the problem-solving studies of Newell and Simon (1972). In these studies subjects are presented with a problem to solve, such as transporting a fox, goose, and corn across a river one at a time without anyone eating anyone or anything else; or a game such as tic-tac-toe or checkers. The subjects are requested to "think aloud" as they solve the problem or play the game. The resulting protocol is then tape-recorded, transcribed and analyzed to determine the various approaches to solving the problem or making a move. This is basically the approach used in this study.

The second theoretical belief that context is an effective, although gradual, method of vocabulary development is a well established traditional position (St. Augustine, 386; Thorndike, 1917; Artley, 1943; McCullough, 1943; Werner & Kaplan, 1950; Deighton, 1959; and Strang, 1967). However, some research (Grey & Holmes, 1938; Gibbons, 1940; Sachs, 1943) indicates that readers do not know how to use context. Petty, Herold and Stoll (1968)

suggest that context studies have not been particularly productive for two reasons, that context clues have been superficially presented, and that students have not been encouraged to use their knowledge of the language. To encourage the use of language knowledge, this study uses real words, rather than nonsense words or blanks, and places those real words in a paragraph context to allow the use of available intersentence information.

Materials: Eleven paragraphs from William F. Buckley, Jr.'s spy novel Saving the Queen were typed doublespaced on 8½" x 11" paper, one paragraph to each sheet. The selection of the paragraph was based on the presence of a difficult word. The words were judged as difficult by two skilled readers: one, a college graduate who was 39 years old and an avid reader and secondly by the experimenter. Some words of medium difficulty were also chosen by the experimenter to insure a broad range of difficulty. The total list of words is as follows: the words of medium difficulty are prototype, placate, and elucidation; the remaining more difficult words are antiphonal, eschewed, lacunae, obduracy, penumbral, porcine, sycophancy, and troglodytic. An analysis of the words according to the American Heritage Word Frequency Book (Carroll, 1971) indicated that the frequency of the words in that corpus of over five million words was as follows: prototype (9), antiphonal (6), placate (3), elucidate (1), eschewed (1) and the remaining six did not occur.

Subjects/Readers Two skilled college level readers participated in the study. The female subject was 35 years old, and had attended one year of college. She was a part-time secretary, housewife and mother, and active in a best-seller book discussion club. The male subject was 48 years old, a college graduate and a company comptroller for a large merchandising firm in Minneapolis.

Method The subjects were introduced to the study with the instruction: "I am interested in how skilled readers deal with unknown or unfamiliar words. As you are reading, try to think of the strategies you are using to help yourself

comprehend the word in particular and the paragraph in general." A tape recorder was used to tape the introspective interview, and the subjects' responses were examined for evidence of the reader's strategies. The paragraphs were presented to the reader, one at a time. After the reader had read the paragraph, he was asked to assign meaning to the target word. The following set of probe questions was used to elicit necessary information not volunteered by the reader.

1. Do you have a general idea of what the paragraph is about?
2. Look for the word, i.e., porcine.
3. Do you know the meaning of that word? Can you ascribe any meaning to it?
4. What does the sentence/paragraph mean to you?
5. How did you go about assigning meaning to that word? What did you do?

Additional questions were asked as appropriate. This same procedure was repeated in a follow-up session approximately one year later. At that time a multiple-choice synonym test was also added.

The order of the paragraphs was randomized by shuffling the pages between each subject. Occasionally, this resulting order was changed to avoid frustrating the subject if three or more words that proved particularly troublesome to the reader came together. This occurred once with the first subject, Linda.

Results Just what did these two skilled readers do when faced with difficult words? First, the strategies that Linda used fell into three main categories: paragraph restatement (which is essentially an avoidance strategy), syntactic analysis, and visual or auditory word part analysis (See Table 1).

TABLE 1
Linda's Strategies (July, 1977)

| Paragraph Restatement (55%) | | Syntactic (18%) | Word Part Analysis (27%) |
|---|---|---|---|
| elucidation | troglodytic | placate | penumbral |
| eschewed | prototype | lacunae | antiphonal |
| obduracy | porcine | | sycophancy |
| Total: 6 | | 2 | 3 |

(September, 1978)

| Paragraph Restatement (18%) | Syntactic (27%) | Word Part Analysis (64%) |
|---|---|---|
| elucidation (X) | lacunae (X) | penumbral (X) |
| porcine (X) | obduracy (X) | antiphonal (X) |
| | eschewed (X) | sycophancy (X) |
| | | troglodytic (X) |
| | | placate (C) |
| | | prototype (C) |
| Total: 2 | 3 | 6 |

Naturally these strategies are not independent of each other, and often interact in the solution of unknown words. The approach used most often by Linda was that of paragraph restatement (55%) or avoidance. In general this approach indicates an undeveloped approach to specific word meaning as the approach does not require differentiation between the word itself and the context of the word. This strategy appeared to be used when other avenues of analysis were possibly unavailable to the reader.

One of the words that Linda used this strategy of paragraph restatement with was eschewed. When asked, "What does the word eschewed mean to you?, Linda took a deep breath and plunged into a paragraph summary stating what was happening. Let's look at the paragraph and I'll read Linda's responses. This

paragraph is a reflection of a man's thoughts as he is flying along high over the plains of Russia. Notice where the word eschewed is used.

> Boris Andreyvich Bolgin peered through the little round porthole on the tatterdemalion IL 12 as the pilot circled the airport. He sometimes felt, approaching Moscow, that it might all end better for him if the pilot would miscalculate while landing in one of those frequent snowfalls, plunging the airplane straight into the ground. He recalled that, as a matter of fact, Comrade Stalin had not eschewed this as an expeditious means of execution. His old superior, Constantine Oumansky, was ambassador to Mexico and in active charge of the entire NKVD operation in Latin America when Comrade Stalin sent for him in 1945. The plane took off, reached fifteen thousand feet, and exploded.

After Linda had read the paragraph, I asked her for the meaning of eschewed, and Linda replied,

> All right, Comrade Stalin had not conglomerated this thing . . . thought up this little trip as means of killing off another person, in other words it wasn't a death ride, he didn't think up this little thing, this little expedition.

Judy: What in the paragraph has given you the clues to that, how were you solving that?

Linda: Well, this one seemed a lot more self-explanatory. I mean, he's up here flying around and the weather is not so terrific maybe, and he's obviously thinking how airplanes can crash. And he recalls, he is going back into his memory that he feels this is not a death mission . . . he's recalling about someone else's death mission . . . he just doesn't feel this is his time or place of calling.

At this point I felt Linda was close to accurate paragraph comprehension and thus decided to try for word meaning once again. I said,

> "Would you ascribe some meaning to that word then?"

And Linda went off again into the paragraph restatement.

Linda: All right, the gentleman in the paragraph, that is, we're going along . . . is thinking with his trying to evaluate his feeling of this Stalin and feels that this is not what he is going to finish like. He's got bigger and better things, and he feels this is not going to be his ending like his old superior.

Although this strategy is an undeveloped approach to word meaning, it provides a good example of the simplification of complexity. If the word or thought being expressed is too far removed from the reader's experience, it is simply ignored, or not dealt with.

The second category of syntactic analysis was used only 18% of the time. The criterion for placement in this category was an expressed utilization of the grammatical position of the word in the sentence. For instance, a grammatically correct (though semantically incorrect) definition was offered with no hesitation for the word "lacunae," even to the point of replacing it in context, as "the order of our work, the depth of our work, the reasoning." The substitutions of order, depth, and reasoning are all grammatically correct, though semantically incorrect.

The third approach, that of using visual or auditory word part analysis, is a more advanced approach in that there is a definite concept of dealing with the word as a unit rather than as embedded within a sentence unit. Within this approach there is a continuum, of course, from the successful "breaking down" of antiphonal into anti- and phonal, and the misleading auditory analysis "psycho" from sycophancy. This approach was used 27% of the time. Linda's strategies in the follow-up session will be discussed later.

Bob's Strategies for Assigning Meaning

Bob displayed a wider variety of problem-solving strategies in dealing with the unknown words than Linda, but it is interesting to note the similarities between the types of strategies. See Table 2.

Table 2
Bob's Strategies (June, 1977)

| Paragraph Restatement (27%) | Syntactic (18%) | Word Part (09%) | Recall (09%) | Definition (36%) |
|---|---|---|---|---|
| obduracy<br>porcine<br>penumbral | lacunae<br>troglodytic | antiphonal | eschewed | elucidation<br>placate<br>sycophancy<br>prototype |
| Total: 3 | 2 | 1 | 1 | 4 |

(July, 1978)

| Paragraph Restatement (00%) | Syntactic (18%) | Word Part (00%) | Recall (18%) | Definition (64%) |
|---|---|---|---|---|
| | lacunae (X)<br>obduracy (X) | | penumbral (C)<br>troglodytic (C) | elucidation (C)<br>placate (C)<br>sycophancy (C)<br>prototype (C)<br>eschewed (X)<br>porcine (C)<br>antiphonal (C) |
| Total: 0 | 2 | 0 | 2 | 7 |

Bob, as did Linda, used the paragraph restatement approach, but only with three words or 27%. It should be noted that both subjects appeared to favor this strategy as a backup when a more specific approach was not readily available to them. In this approach, as mentioned previously, the reader does not differentiate the word meaning from the context meaning. The largest percentage (37%) of Bob's responses were definitional. This resulted from the fact that Bob actually was quite familiar with these words. On the four words for which Bob offered definitions, his manner and directness clearly indicated his self-confidence and self-assurance of his accuracy. When

asked for the meaning of elucidation he replied without hesitation, "to describe in more detail." The same immediate response occurred with both placate and prototype. When the experimenter indicated the target word with a pencil, Bob correctly pronounced the word each time and provided a synonym: "placate ....satisfy" and "prototype....pilot, sample...."

His response to the word sycophancy, however, lacked total confidence as the following excerpt shows.

Judy: Okay, the word I'm looking for is in the third line.

Bob: Sycophancy - apple polishing or boot-licking.

Judy: Then you are already familiar with the word, did you just recall it?

Bob: Now you're raising some doubts!

Judy: I don't mean to. As you read, does the meaning come to your mind right away?

Bob: Yes.

Judy: So you continued on without stopping?

Bob: Yes, but I could be totally wrong!

Bob's readiness to express doubt about his definition is difficult to interpret. It could possibly represent a step on the degree of knowledge scale. In other words, a position that is a degree or two removed from certainty. Or the response may simply reflect the uncertainty within the quasi-testing situation of the interview.

The only remaining category to discuss is that of recall. Although the strategy was not used by Linda at all and only once by Bob, it may represent an important stage in the development of word meaning. As Bob tried to assign meaning to the word eschew he said, "I'm not trying to relate it to the paragraph, but recall it by memory." When asked for why he would use that strategy, he replied, "Well, it's quite a familiar word, but not that clear." The phrase "it's quite familiar but not that clear" seems to indicate a

degree of familiarity that was not encountered previously. After the recorder was turned off, Bob recalled why he felt familiar with the word eschewed. He said that he had formerly memorized a passage from Shakespeare that contained that word. With that additional information, it is tempting to conclude that recall of meaning was elusive due to the unusual type of categorization storage, i.e. it was the word in context that was stored rather than the individual word.

Follow-up Results.

Bob's responses show a definite pattern of development with these specific words over a year's time. (See Table 2 again)

Note that all three words from the paragraph restatement or avoidance strategy changed categories. The word obduracy is now in the syntactic category; the word porcine is now definitional, and penumbral is in the recall column. Bob remembered looking penumbral up specifically, and said that it was an "insect" word. Later, however, upon encountering troglodytic, Bob reversed himself and said that troglodytic was the "insect" word.

Note also that the word antiphonal, formerly in the word part analysis category, and the word eschewed, from the recall category, are both definitional.

Finally, the word lacunae was the only word that remained in the same category, other than the four words for which Bob already knew the definition.

On the multiple-choice test, eight of the words that were classified in the definition and recall categories were correct on the multiple-choice test. (The X's and C's indicate the incorrect/correct words.) This is particularly interesting as Bob had earlier identified both troglodytic and penumbral as the "insect" word. The two words classified as syntactic were incorrect; the last word, eschewed, for which Bob gave a correct definition, he missed on the multiple-choice test.

These results indicate a definite pattern of growth over the year's time. A further question, of course, is if this same pattern would occur with different words, and if, in another year's time, further growth would be indicated with these specific words.

In examining Linda's growth over a year's time three major facts emerge. First, there is the same general movement of words moving out of the avoidance or paragraph restatement category which represents the least sophisticated approach to dealing with unknown words. Second, and more specifically, two of the words, prototype and troglodytic have moved to the word part analysis category; and two other words, eschewed and obduracy, moved to the syntactic category. Only two words, elucidation and porcine, remain in the restatement category. The third fact is that while the word part category has increased to six, the three words that were originally there, penumbral, antiphonal, and sycophancy are still there. Also Linda demonstrated no indication of Bob's recall category. In addition, despite an acknowledged familiarity with prototype, Linda was unable to provide a definition. Note, however, that Linda was able to choose the correct synonym for prototype on the multiple-choice test. The only other word that Linda was able to answer correctly on the multiple-choice test was placate.

Conclusions.

Although this study is clearly exploratory, it has tentatively identified four strategies that skilled readers use in dealing with unknown words. In addition, the follow-up study has indicated a general movement of words from the paragraph restatement category to categories requiring more specific awareness of individual words.

Further research is needed both to discover other possible strategies and to possibly identify the stages of vocabulary development.

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